

## Claims

1. A nonwoven fabric air filter for an internal combustion engine with a pleated form which comprises an air-laid nonwoven fabric obtained by forming a plurality of layers mainly composed of polyester-based binder fibers having a fiber length of 1 to 10 mm by an air-laid nonwoven fabric production process and performing heat adhesion, wherein an upper layer side (fluid inflow side) comprises large fibers, a lower layer side (fluid outflow side) comprises fine fibers, a final fluid outflow side comprises 100% of the polyester-based binder fibers, the basis weight (METSUKE) is from 100 to 350 g/m<sup>2</sup>, the apparent density is from 0.04 g/cm<sup>3</sup> to 0.3 g/cm<sup>3</sup>, and the dry-heat shrinkage factor after 300 hours at 100°C is 3% or less.

2. The nonwoven fabric air filter for an internal combustion engine according to claim 1, which has a fiber diameter of 20 to 45  $\mu$ m and a basis weight of 10 to 75 g/m<sup>2</sup> in the large-fiber layer on the upper layer side, a fiber diameter of 15 to 30  $\mu$ m and a basis weight of 20 to 105 g/m<sup>2</sup> in an intermediate layer, and a fiber diameter of 7 to 20  $\mu$ m and a basis weight of 70 to 170 g/m<sup>2</sup> in the fine-fiber layer on the lower layer side.

3. The nonwoven fabric air filter for an internal combustion engine according to claim 1, which has a fiber diameter of 25 to 50  $\mu$ m and a basis weight of 5 to 50 g/m<sup>2</sup> in the large-fiber layer on the upper layer side, a fiber diameter of 20 to 35  $\mu$ m and a basis weight of 15 to 70 g/m<sup>2</sup> in an

intermediate layer, a fiber diameter of 15 to 25  $\mu\text{m}$  and a basis weight of 30 to 90  $\text{g/m}^2$  in a finer-fiber layer on a lower layer side, and a fiber diameter of 7 to 20  $\mu\text{m}$  and a basis weight of 50 to 140  $\text{g/m}^2$  in the fine-fiber layer of the lowest layer.

5        4. A nonwoven fabric air filter for an internal combustion engine, in which two or more of the air filters according to any one of claims 1 to 3 are further compounded.

10       5. The nonwoven fabric air filter for an internal combustion engine according to any one of claims 1 to 4, which has water repellency.

6. The nonwoven fabric air filter for an internal combustion engine according to any one of claims 1 to 5, wherein other fibers are blended with the polyester-based binder fibers in the layers other than the final fluid outflow side.

15       7. The nonwoven fabric air filter for an internal combustion engine according to any one of claims 1 to 6, which is compounded with another air-permeable sheet.